12-355
3-6-87

MARINE POWER AND EQUIPMENT

TECHNICAL STATUS REPORT

There were three facets to the Marine Power and Equipment study, namely: Bioassay of sediments, Metals analysis, and a dive survey to determine the quantity of sandblasting debris present at the Marine Power facilities.

Sampling for Chemical Analysis

The sampling areas selected in figures 1 and 2 were chosen because of their proximity to areas where samdblasting debris was found on a previous survey.

Composite samples were collected at each of the areas with a VanVeen grab sampler. Three grab samples were collected from an area and mixed in a pre-cleaned stainless steel bucket until the sediment was homogenious. This required 5 to 6 minutes of constant stirring. The homogenized sample was then split three ways: A 1-gallon aliquot for bioassays, an 8 ounce container for metals analysis and as 8 ounce container for organotin analysis in the future. The samples remained refrigerated in ice chests and in the custody of EPA personnel until they were delivered to the EPA laboratory in Manchester, Wa.

The analytical results for metals analysis are contained in appendix A.

Bioassay results are contained in appendix B.

Diving Operations

The objective of the dive survey was to find the thickness and areal extent of the deposits of samdblasting debris on the bottom of Lake Union and the Duwamish River.

Method

A 100-meter line, which was marked in 5-meter increments, was laid on the bottom of the lake for divers to follow. Divers dug holes into the lake bottom with a trowel at the 5 or 10 meter intervals along the line and measured the thickness of sandblasting debris using a folding carpenters rule. The measurements and other notes were recorded as divers progressed along the line. After each dive the line was moved to a new location and the process repeated. The Lake Union site was the only site surveyed because of a lack of divers available to do the job.

The results are presented in Appendix C and figure 1.

FIG 1

MARINE POWER & EQUIPMENT COMPANY

1441 North Northlake Way, Seattle, Washington

February 5, 1987

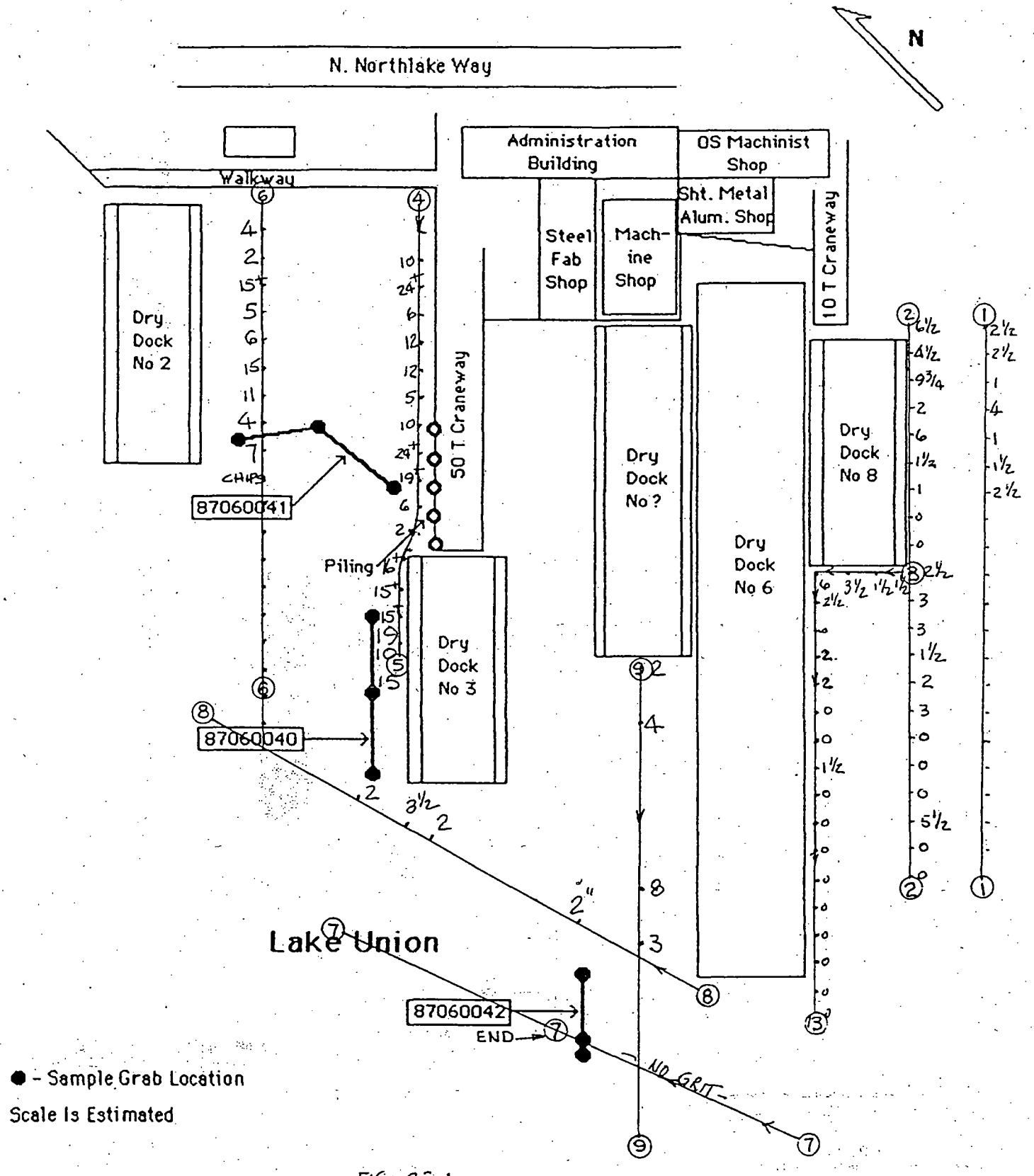
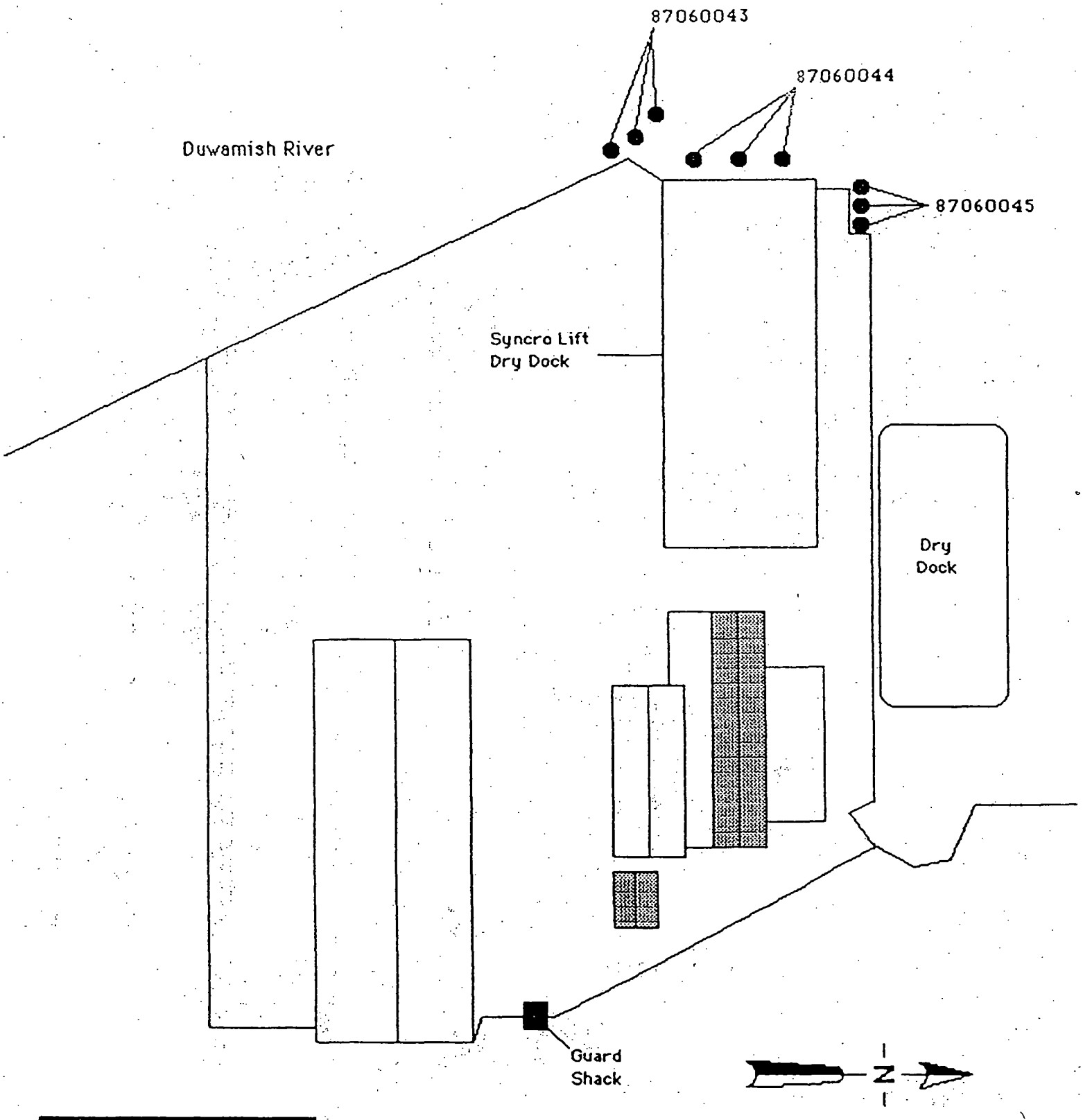


FIGURE 1

MARINE POWER & EQUIPMENT COMPANY

6701 Fox Ave. S., Seattle, Washington

February 6, 1987



● — Composite Sample Site

Scale Is Estimated

FIGURE 2

APPENDIX A

METALS

EPA Region X Lab Management System
Sample/Project Analysis Results

Project: TEC-222C MARINE POWER AND EQUIPMENT BIOMONITORING Officer: MJM Account: AFEB3A

Sample No: 87 060040 Begin Sample Date: 87/02/05 10:00 Source: F

Laboratory: RX Description: 25' WEST OF MPE 003

End Sample Date: 87/02/05 10:26 Comp: S Freq: 03

Metals-Specified Parameter		Sediment Result	Units
Arsenic	As-Sedmt	REQ	mg/kg-dr
Cadmium	Cd-Sedmt	44.3	mg/kg-dr
Chromium	Cr-Sedmt	197	mg/kg-dr
Copper	Cu-Sedmt	3110	mg/kg-dr
Lead	Pb-Sedmt	3150	mg/kg-dr
Zinc	Zn-Sedmt	10360	mg/kg-dr
Tin	Sn-Sedmt	195	mg/kg-dr
Iron	Fe-Sedmt	160000	mg/kg-dr
Mercury	Hg-Sedmt	0.388	mg/kg-wt

LL

(Sample Complete)

EPA Region X Lab Management System
Sample/Project Analysis Results

Project: TEC-222C MARINE POWER AND EQUIPMENT BIOMONITORING Officer: MJM Account: AFEB3A

Sample No: 87 060041 Begin Sample Date: 87/02/05 11:02 Source: F

Laboratory: RX Description: BETWEEN SOT CRANE WAY + MPE 002

End Sample Date: 87/02/05 12:00 Comp: S Freq: 03

Metals-Specified Parameter		Sediment Result	Units
Arsenic	As-Sedmt	REQ	mg/kg-dr
Cadmium	Cd-Sedmt	28.5	mg/kg-dr
Chromium	Cr-Sedmt	129	mg/kg-dr
Copper	Cu-Sedmt	3010	mg/kg-dr
Lead	Pb-Sedmt	1830	mg/kg-dr
Zinc	Zn-Sedmt	10040	mg/kg-dr
Tin	Sn-Sedmt	266	mg/kg-dr
Iron	Fe-Sedmt	213000	mg/kg-dr
Mercury	Hg-Sedmt	0.318	mg/kg-wt

LL

(Sample Complete)

Project: TEC-222C MARINE POWER AND EQUIPMENT BIOMONITORING Officer: MJM Account: AFEB3A

Sample No: 87 060042 Begin Sample Date: 87/02/05 14:20 Source: F

Laboratory: RX Description: BETWEEN 003 + 006

End Sample Date: 87/02/05 14:40 Comp: S Freq: 03

Metals-Specified Parameter		Sediment Result	Units
Arsenic	As-Sedmt	REQ	mg/kg-dr
Cadmium	Cd-Sedmt	31.8	mg/kg-dr
Chromium	Cr-Sedmt	96	mg/kg-dr
Copper	Cu-Sedmt	1810	mg/kg-dr
Lead	Pb-Sedmt	2700	mg/kg-dr
Zinc	Zn-Sedmt	7260	mg/kg-dr
Tin	Sn-Sedmt	186	mg/kg-dr
Iron	Fe-Sedmt	102300	mg/kg-dr
Mercury	Hg-Sedmt	0.187	mg/kg-wt

LK

(Sample Complete)

Project: TEC-222C MARINE POWER AND EQUIPMENT BIOMONITORING Officer: MJM Account: AFEB3A

Sample No: 87 060043 Begin Sample Date: 87/02/06 12:35 Source:

Laboratory: RX Description: STATION #1

Metals-Specified Parameter		Sediment Result	Units
Arsenic	As-Sedmt	REQ	mg/kg-dr
Cadmium	Cd-Sedmt	3.8	mg/kg-dr
Chromium	Cr-Sedmt	58	mg/kg-dr
Copper	Cu-Sedmt	410	mg/kg-dr
Lead	Pb-Sedmt	238	mg/kg-dr
Zinc	Zn-Sedmt	1250	mg/kg-dr
Tin	Sn-Sedmt	105	mg/kg-dr
Iron	Fe-Sedmt	54600	mg/kg-dr
Mercury	Hg-Sedmt	0.101	mg/kg-wt

(Sample Complete)

Project: TEC-222C MARINE POWER AND EQUIPMENT BIOMONITORING Officer: MJM Account: AFEB3A

Sample No: 87 060044 Begin Sample Date: 87/02/06 13:15 Source:

Laboratory: RX Description: STATION #3 LIFT END OF SYNCHRO

Metals-Specified Parameter		Sediment Result	Units
Arsenic	As-Sedmt	REQ	mg/kg-dr
Cadmium	Cd-Sedmt	11.6	mg/kg-dr
Chromium	Cr-Sedmt	182	mg/kg-dr
Copper	Cu-Sedmt	1340	mg/kg-dr
Lead	Pb-Sedmt	539	mg/kg-dr
Zinc	Zn-Sedmt	3790	mg/kg-dr
Tin	Sn-Sedmt	187	mg/kg-dr
Iron	Fe-Sedmt	47100	mg/kg-dr
Mercury	Hg-Sedmt	0.114	mg/kg-wt

(Sample Complete)

Project: TEC-222C MARINE POWER AND EQUIPMENT BIOMONITORING Officer: MJM Account: AFEB3A

Sample No: 87 060045 Begin Sample Date: 87/02/06 14:05 Source:

Laboratory: RX Description: STATION #4 NW CORNER OF SYNCHRO 1 FT

Metals-Specified Parameter		Sediment Result	Units
Arsenic	As-Sedmt	REQ	mg/kg-dr
Cadmium	Cd-Sedmt	1.2	mg/kg-dr
Chromium	Cr-Sedmt	37	mg/kg-dr
Copper	Cu-Sedmt	179	mg/kg-dr
Lead	Pb-Sedmt	72	mg/kg-dr
Zinc	Zn-Sedmt	700	mg/kg-dr
Tin	Sn-Sedmt	121	mg/kg-dr
Iron	Fe-Sedmt	46200	mg/kg-dr
Mercury	Hg-Sedmt	0.104	mg/kg-wt

(Sample Complete)

APPENDIX B

BIOASSAY RESULTS